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ASSESSING USS ARIZONA

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Introduction

Imprinted forever in the nation's memory is the image of *USS Arizona* protruding from the waters of Pearl Harbor after the Japanese air strike, December 7, 1941. However, until recently, little thought was given to the actual physical remains. No one really knew the condition of the great battleship following the explosions triggered in her magazines and the work of Navy salvage crews shortly thereafter.

The need to answer questions from the public urged the National Park Service and Navy officials to initiate a full-scale investigation of the vessel. Visitors to the USS Arizona Memorial had difficulty visualizing the size and significance of the ship from the rusted remains protruding from the water. To remedy this, a variety of information was needed, i.e., rate of deterioration, source of fuel oil leaks, types of marine life in and around the hulk, and degree of damage.

Former Superintendent Gary Cummins felt that a scale model of the vessel as it rests on the harbor bottom would diminish visitor confusion. To accomplish this, accurate drawings were needed. From them, a realistic model was planned for the visitor center. The photographic documentation, measured drawings, and videotape coverage required in order to build the model were also of interest for the research possibilities they represented. In addition, they would help people understand the uniqueness of the USS Arizona Memorial, even if they were unable to visit the park.

The Challenge

Collecting information on *USS Arizona* required mapping an underwater historic structure four times the length of the Statue of Liberty. Divers faced and solved a number of difficult technical problems before completing the project. Underwater visibility varied from five to seven feet, decreasing with depth. Plant life and various other encrustations altered the true appearance of *USS Arizona*, while the fine layer of silt surrounding it reduced visibility to zero whenever divers' movements stirred up the deposits.

To further compound the problems, oil leaked from an unknown source deep in the ship's hull. Divers also observed unexploded ordnance on the deck. Several times during the project live five inch projectiles, .50 caliber antiaircraft machine gun rounds, and a hazardous 1942 compressed welding gas tank were located and removed.

Because the ship had to be studied under less than ideal conditions, the NPS Submerged Cultural Resources Team adapted normal methods of underwater mapping to both the larger scale and unusual circumstances of *USS Arizona*.

Early in the 1983 field season, base lines were established using brightly colored nylon cord, then fastened temporarily to points or laid on horizontal portions of the ship's surfaces. Divers measured incremental distances along the base lines. Plastic clips were then fastened to the lines and labeled with distance figures. Teams of divers working in pairs used clipboard-sized mylar sheets, underwater markers, and smaller measuring tapes to determine distances, sketch accurately-scaled details onto the mylar sheets, and note structural features. Simultaneously, video and still photography systematically recorded all vessel surfaces as well as the movement of divers. From many separate mylar sheets, Jerry

Livingston, scientific illustrator with the Submerged Cultural Resources Team, compiled composite drawings, section by section, field checking many of the measurements. Videotapes visually confirmed details as well as certain measurements through freeze-frame observations on a monitor screen.

It came down to an exercise in tedious measuring, recording, and double-checking in order to produce detailed maps of *USS Arizona*. Over a mile of cord was used to establish base lines and secondary datum lines, as well as to section off areas for fine-scale sketching. A civilian engineering firm from Honolulu set up instruments on old mooring keys near the vessel to accurately tie underwater mapping information to known reference points on land. All in all, hundreds of hours of underwater time passed before the divers could amass all the measurements necessary for accurate finished drawings.

Following the 1984 field season, Livingston combined his preliminary drawings into five basic views of the vessel—elevations of port, starboard, and deck, plus oblique views from bow and stern perspectives. An additional drawing illustrating the placement of the memorial structure amidships was procured for local use. Inexpensive full and half-size paper copies of the final graphic are now available from the Superintendent's office and Western Region.

The Results

Thanks to extensive investigations of *USS Arizona*, its oil leak was discovered in Number Three Gun Turret. A thorough examination also documented the old mooring blocks in order to plan proper methods of removal. Non-historic objects—including coins tossed by visitors—were cleared from the deck areas and hull. Divers searched the harbor bottom around the hull for historically significant debris from WWII era Navy salvage efforts as well as the attack itself. They located an area where original superstructure pieces held by the Navy could be returned to the vicinity of the warship.

Results of the two field seasons included completion of the detailed drawings, observations about the vessel's condition, and recommendations.

Observations:

1. A careful search of the ship's port hull failed to locate evidence of torpedo damage. This search was initiated in an attempt to resolve differences in testimony from survivors who said they saw torpedoes strike the vessel, and official Navy records which fail to mention torpedo damage. Since the ship settled at a five degree/ten degree port list, any entry hole in the lower port side might be obscured by silt and damaged plates.

2. A rich growth of marine organisms, including barnacles, oysters, anemones, corals, sponges, and grasses, may protect the fabric of the vessel from corrosion. The lower portions of the hull, as well as interior spaces, are also protected by heavy layers of silt.

3. Battle damage is severe, especially aft of the bow. The hull at that point is cracked from the gunwale down to the keel on the port side, and nearly this distance on the starboard side. The deck is almost completely blown away, with a large armored portion peeled back toward the port and jutting over the side. The remainder of the deck is littered with debris.

4. Number One gun turret is still intact, with the long fourteen-inch gun tubes pointing forward in a slightly depressed elevation. Number Two gun position has been opened from the top, and tubes removed. Number Three gun turret mount protrudes above the water, while a large hole appears toward the stern where the Number Four gun position was. At the stern, there is a large hole on the starboard side, which resulted from salvage operations, probably removal of the stern crane and its motor. There is a bomb hole on the starboard side of the stern, where a bomb pierced the deck and exited the hull after glancing off the Number Four turret faceplate.

5. The starboard side of the hull appears to be in poorer condition than the port side and shows loose hull plates which move with tidal flows. No explanation is available for differential preservation of the vessel.

6. Excepting a portion of a WWII salvage crane and a pile of timbers directly in front of the bow, no salvage or attack debris was observed on the harbor bottom surrounding the vessel. Silt has accumulated in piles about amidships on both port and starboard sides. The timbers are part of a "camel" or bumper between moored ships.

7. The old steel and concrete landings erected by the Navy in the 1950s for ceremonial visits to the vessel were examined and videotaped. These concrete landings are attached by steel supports to the port side of the ship and impose a considerable weight penalty on weakened areas of deck and hull. For this and aesthetic reasons, removal of these landings should be done, but scrutiny by marine structural engineers will be needed before any action is taken.

Recommendations

1. Periodic inspection of the hull, deck, and other areas should be made by USS Arizona Memorial staff divers, at least on a quarterly basis, with coordination from Navy units when possible. NPS staff should continue to watch for small changes in the vessel and be alert to changes detrimental to her construction. Such periodic visits should also indicate to visitors that both the National Park Service and the Navy are active stewards of the historic resource.

2. Specific proposals should be developed for stabilizing metal deterioration in structural areas.

3. A system of control stations is needed for monitoring structural deterioration or stability, general biological environments and their effects, and how the vessel, as an artificial reef, interacts with the highly altered harbor water environment. Photographic datum points should also be established for continual documentation, using a variety of media.

With the information gained from the underwater investigation of *USS Arizona*, the foundation has been laid for a successful cultural resources program in the years to come.

Planmetric View

This view illustrates deck spaces and openings resulting from post-attack salvage operations in which the Arizona's 5-inch guns and 14-inch turreted guns were removed. The superstructure, including foremast and bridge, was also removed. Extreme battle damage is visible at the bow (left), causing the Number One gun turret to become depressed. Along the port side of the vessel lies a portion of a World War II salvage crane. At the bow, a 'camel' or timber bumper between moored ships rests on the bottom. USS Vestal, an auxiliary vessel, was moored along the port side of Arizona. Ford Island is a short distance from Arizona's starboard side. The Memorial is astride the battleship at amidships but not connected to the Arizona.

Port Elevation

Salvage crane braces and silt deposits are shown in this view which illustrates the comparison of battle damage forward of amidships with the aft areas, including Number Three and Four gun turret locations.

Presently, the highest features in this view are the 1950s landing platforms supported by cross-bracing and with a single mooring block. An intrusive concrete block with chain is visible near Number Two gun turret.

Starboard Elevation

The right or starboard side of Arizona faced Ford Island, the small island next to "Battleship Row." Vertical lines in this drawing indicate hull plate separation or potential deteriorating joints. Number One and Two gun turrets (to the left) clearly show the unsalvaged turrets and armor. Arizona's usable 14-inch guns were removed from the after turrets to arm two coastal batteries on Oahu, but only one was completed.

Perspective View from Bow

The dotted lines indicate approximate hull configuration. An open hatch and exposed teakwood decking is shown near Number One gun turret. Three lengths of anchor-type chain are not historic to the vessel's fittings. The protruding bulbous bow was designed to reduce wave-making resistance at high speeds.

Perspective View from Stern

Drive shafts, propellers, rudder and hull at the turn of the bilge is projected by dotted lines. Arizona's stern configuration was that of a cruiser with one large rudder. Lower hull spaces were boiler-feed water tanks, potable water supplies, and fuel oil bunkers. Toward the starboard quarter of the stern, a semi-circular armored casemate is illustrated at the meeting of hull and deck lines. Arizona possessed 20 such casemates armed with 5-inch and 51-caliber anti-torpedo guns, but by 1941 most of her secondary armament of this type had been modified greatly.

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RESTORATION OF A ROOFING

Reed Engle

The importance of historic photograph collections as restoration aids was again verified in the rediscovery of a roofing technique generally long forgotten, but now believed to have been commonly used in Mid-Atlantic vernacular construction. First noted in a Matthew Brady photograph of the Brian House and bake oven (Gettysburg NMP) taken shortly after the Battle of Gettysburg,¹ the roofing was believed to be clay tiles, a not uncommon form of early covering in Pennsylvania, which indeed it resembles.

Reexamination of the photograph led, however, to the eventual recognition that the roofing was not tile, but in fact drawn shakes laid in what was at first considered a highly unusual manner. Subsequent archival and field research has revealed that this roofing type, herein called biaxially tapered shakes for lack of a better name, was common in areas of Germanic settlement through the latter part of the 19th century.

The earliest documented use of biaxially tapered shakes known to this author is at the Hans Herr House (1719) in Willow Street, Pennsylvania. The three-story stone house would not have been out of place in any of the small villages in southern Germany in the 16th and 17th centuries, nor would have the restored buildings at the Ephrata Cloisters (1736-1749) nearby. The curatorial collections at both museums preserve early, if not original, samples of biaxial shakes.² The roofing material is also found on the restored Ellicott-Sehner House (Lancaster, PA), Susannah Wright House (Columbia, PA, c. 1740), Plow Tavern (York, PA) Joseph Sherrick (Sherk) House (Antietam NMP, c. 1835),³ and the Johnson Farmstead (Peaks of Otter, Blue Ridge Parkway, c. 1855).⁴ Examination of other period photographs has revealed that the Sharpsburg Lutheran (German Reformed) Church outside Antietam had a similar roof in September, 1862.⁵

The past restoration of buildings built after c. 1840 suggests that the roofing style was discontinued by the mid-19th century, but the photographic record of Brady and his followers indicates that at the time of the Civil War no less than 16 buildings in the Gettysburg area had biaxially tapered shake roofs, and that several of them were re-roofed in the same manner after the war, in one case as late as 1880.

The rediscovery of the extensive use of the biaxially tapered shake roof is certainly a small factor in the physical interpretation of 18th and 19th century sites, yet its reuse, where justified, will add a richness to structures that is not found with ordinary wood shingles or shakes. The vertical alignment of the edges, the regularity of shadows, and the greater horizontal density of shakes compared to the longer vertical exposure all combine to form a pleasing pattern that, once discovered on old photographs, is instantly recognized.

Examination of early or original examples of biaxial shakes revealed several common features: (1) all were riven from oak, generally Northern Red Oak (*Quercus rubra*); (2) all were 34"-36" in length, 5"-8" in width; (3) all were drawn after being split and were tapered both longitudinally, as is typical, and laterally, the key to the installation of this roofing type; the shakes generally tapered from 1 1/2" in thickness to a feathered edge in both directions; and, (4) all examples of used shingles exhibited nailholes on the thicker third, i.e., the exposed face or butt end.

These physical findings are verified in careful examination of the early photographs at Gettysburg. Counting courses from eave to ridge on existing, unaltered barns revealed that the early shingle exposures averaged +~2" on the rise, i.e., the vertical dimension. The photographs also show clearly the distinctive manner in which the roofing was laid: each shake laps over one adjacent shake across the course, as well as lapping over the next one down the slope of the roof (see illustrations). The covered portion of the lapped shake appears to have been typically 1 1/2"-2 1/2", leaving a total exposure of approximately 3 1/2"-5 1/2" depending on the width of the original shake (5"-8").

The width of the individual first course shakes was important because it defined the width of each subsequent shake in the same location in the overlying courses; only by matching widths from eave to ridge was it possible to achieve the vertical linearity of edges that at first resembles that found in tile roofs.

The early photographs also reveal the details of the starter course, a pattern not reproduced in the several restorations based on discarded, or broken, i.e., not in situ, early shakes: the starter course was lapped in the reverse direction to the rest of the roof. The starter course members usually lapped toward the direction of the prevailing storms (in Gettysburg to the north, northwest, or southwest) while the finished, or exposed, shakes lapped away from the storms toward the northeast, east, or southeast.

Judging from the early shakes in collections, from the restorations, and from the photographs, each shake was nailed but once and in the lower, non-tapered corner, 2'-3/" up from the butt and 1N-2" from the edge. The adjacent horizontal course shake, once nailed, would provide a second attachment, and two more nailings on the next shake on the course above. The third course up to the ridge may or may not have provided a third pair of nailings near the upper feathered edge of the first shingle, depending on whether it was a full 36" in length.

Examination of the restored roofs bears testimony to a constant concern—leakage. Some of the roofs at Ephrata had been interleaved with 90 lb roofing felt in concern for the feeling that this type of roof "could not" be tight. The roof does not leak, but excessive curling of the shakes seems to have been the result of a lack of adequate ventilation. Surprisingly, the shakes at Hans Herr House, laid without felt, on 1"x3" lath, show no evidence of leakage. Also, there is less light penetration, as observed from below, than would be expected from a typical sawn shingle roof. Furthermore, the overall curling seems far less pronounced, and is generally limited to the south facing side of the roof, where rapid drying is most severe and where roof replacement is usually first required.

The use of historic photographs has, in this case, initiated the research necessary to verify and resurrect a vernacular form of roofing not known to have been restored on any 19th-century structures in the Mid-Atlantic Region. Yet this roofing now appears to have been common in Pennsylvania, Maryland, and possibly Shenandoah Valley Germanic settlements in the 17th-century through at least 1880.⁶ Perhaps by reexamination of park and local photographic archives, the distribution of biaxially tapered shakes will be confirmed in similar communities throughout the east and mid-west and restored to park structures when appropriate.

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FOOTNOTES

¹ Special thanks are due to Kathy Georg, Historian, and John Heiser, Architectural Technician, Gettysburg NMP, for many hours spent examining park photograph collections. Also to Robert Vorhees Preservation Specialist at Gettysburg, with whom the author visited Ephrata Cloisters and the Hans Herr House.

² Thanks to Earl B. Groff, Curator of the Hans Herr House, and Nadine Steinmetz Administrator of Ephrata Cloisters, for allowing the study of the original and/or early biaxially tapered shakes in their collections.

³ Betty Otto, Park Technician at Antietam NMP, provided much useful information establishing early German settlement in Sharpsburg. Joseph Sherrick (originally Sherck) was married to Barbara Miller who was of German descent. The Sherks purchased their 200 acres late in the 18th century from Henry Orndorf.

⁴ Steve Beatty, Historian at Blue Ridge Parkway, indicates that there were several early Germanic communities on the Shenandoah Valley side of the Blue Ridge Parkway and that several in-laws of the Johnson family had Germanic surnames.

Jim Askins, Chief, Williamsport Preservation Training Center, restored the roof on the Farmstead. Askins notes that the original shakes were red oak, 32~ in length, and were biaxially tapered. Unlike other examples cited in this article, they were not face-nailed, but blind-nailed.

⁵ The Alexander Gardner photograph of September, 1862, is reproduced in *Divided We Fought*, Hirst D. Millhollen, Milton Kaplan, and Arthur H. Stuart, New York City, MacMillan, 1952, page 131.

⁶ Gettysburg Historian Georg searched census and tax records for the 1860-1890 period and notes that every person identified as a carpenter by trade in Gettysburg had a Germanic surname. This suggests the possibility that the roofing type was retained long into the 19th century more as a result of the abilities and experience of the tradesmen than as a preference of the owners of buildings.

Historic Libraries in National Park Service Areas:

Independence National Historical Park

David H. Wallace

Judging a book by its cover is a practice not generally recommended, especially in library circles, but circumstances alter cases. In the furnishing of historic buildings, books may serve as visual elements of a period setting. Indeed, the presence or absence of books reveals something about the original occupants of the structure. If the books displayed are the ones actually there at that earlier period, so much the better. If they are only books of the right period, reflective of the original owner's tastes and interests, they still have a certain educational value, so long as they also look right.

The National Park Service (NPS) administers hundreds of historic houses or public buildings varying in period from the seventeenth century to the twentieth. Close to a hundred of them are wholly or partially furnished as they were at some moment in their historic past. In scale, they range from the tiny cabin in which the future President Andrew Jackson plied his trade as a tailor in eastern Tennessee to the multi-roomed mansion above Death Valley known as "Scotty's Castle." They include homes of the great and of the practically unknown, the scenes of events like the adoption of the Declaration of Independence and Lee's surrender to Grant, military forts, fur trade posts, blacksmith's shops, barns, and even outhouses. No matter how grand or how small or insignificant, the National Park Service seeks to provide authentic furnishings through careful research and planning.

Where books are known to have been a part of the scene, the furnishing plan normally spells out in as much detail as possible just what these books were. This is easy, of course, when a house is turned over to the NPS already furnished (e.g., Franklin D. Roosevelt's house at Hyde Park or Carl Sandburg's North Carolina home), and the books are there to catalogue and display as they were during the man's lifetime. It is much more difficult to reconstruct a library that no longer exists. A contemporary inventory or a portion of a library may have survived, but more often the planner can state only in a general way the types of books a particular person or office may have had. In some cases, the libraries of Independence National Historical Park possess original volumes; in others, their configuration has had to be recreated by the researcher.

Library of the Assembly of Pennsylvania, State House (Independence Hall)

Like all legislative bodies, the Pennsylvania Assembly acquired books for the use of its members. From about 1752 until the Revolution, their library was housed in an elegant room attached to the first floor Assembly Room. When the Continental Congress occupied this room in 1775, the Assembly and its books moved upstairs. The books were housed in the Secretary's office (along with a small arsenal of military weapons). It is in this room, now refurnished, that the Assembly Library is being compiled.

The earliest extant catalogue of the Assembly Library dates from the first part of the nineteenth century. Since the editions are specified by date, it is at least possible to use their list to identify titles old enough to have been in the pre-1776 library. Better yet, some of the original volumes have survived. In the Pennsylvania State Library at Harrisburg, you can see them in their original leather covers, with the words "Assembly of Pennsylvania" gilt-stamped on the front cover. Since the original volumes are not available for display in their original setting, other copies of the same titles (mostly eighteenth century English legal and historical works) are being acquired for that purpose. In the Assembly library, as well as other NPS libraries, bindings are an important visual element. Wherever possible, books

are acquired in their original binding. Where this is not possible, old bindings are reproduced.

Libraries of the Two Houses of Congress, Congress Hall

When the United States Government returned to Philadelphia for ten years in 1790, the Senate and the House of Representatives each maintained its own small reference library. Not until after the move to Washington in 1800 did a unified Library of Congress come into being. Although no catalogues of these early Congressional collections exist, the government published a list of books acquired for the new library in 1802, and appended to this a separate list of books already in the libraries of the two Houses of Congress. By eliminating a few titles published in or after 1800, we thus can say with pretty fair assurance what books were on hand while Congress sat in Philadelphia.

In the restored Congress Hall, the National Park Service has been reconstituting the library of the Senate, in its original location (following architectural evidence of shelving on the walls) in one of the second floor Senate committee rooms. Since none of the original books are still available, even in the collections of the Library of Congress, copies of the same titles and editions, in original bindings, are being acquired gradually by donation and purchase. A portion of the 1964 Congress Hall "want list" is inserted here, to give some idea of the degree of authenticity sought for the project.

Acts and Laws of the State of Connecticut, in America. Hartford: Babcock, 1786. 8vo. (Evans, 19575) (Preferably with supplements through 1791).

Adams, John. A Deknse of the Constitutions of Government of the United States of America, against the Attack of M. Turgot... 3d ed. Phila.: Wm. Cobbett, 1797. 3 vols. 8vo. (Evans 31689-91).

The American Museum, or Repository of Ancient and Modern Fugitive Pieces, Prose and Poetical...Phila.: M. Carey 1787-92. 12 vols. 8vo. (Sabin 1162).

Library of John Todd, Jr., Attorney-at-Law

At the northeast corner of Fourth and Walnut Streets, Philadelphia, stands the 1776 row house in which John Todd, Jr. and his wife Dolley (later known to fame as Dolley Madison) lived from 1790 to 1793. A young and rising lawyer, Todd had his office in the downstairs front room of the house. We know he had a relatively large library because of the high value placed on it after his sudden death in the yellow fever epidemic of 1793. The books were left in trust for his young son and zealously treasured by his widow, even after her marriage to James Madison a year later. Unfortunately, there is no list of the titles extant and none of the books have turned up, all having been sold by the son before he died in the 1840s. In this case, the library planner has been forced to rely on lists of books owned by other Philadelphia lawyers of roughly the same period. By taking half a dozen of these, collating them, and establishing a frequency curve, it has been possible to compile a theoretical inventory of books most likely to have been owned by a Philadelphia lawyer in the early 1790s. To this inventory have been added certain standard Quaker works, because the Todds were active in the Society of Friends, and some works of fiction and drama, because of diary references to playgoing and Dolley's known reading habits.

Bishop White's Private Library

At the other end of the 300 block of Walnut Street from the Todds' house stands the restored home of Rev. Dr. William White, Bishop of Pennsylvania, Chaplain of Congress, Rector of Christ Church and St. Peter's. A prominent feature of this house, in which the Bishop and his family lived from 1787 to 1836, is the study. So closely was he identified with this room, in which much of his professional life centered, that his family commissioned a painting of it shortly after his death. This shows in detail much of the Bishop's extensive library, with floor to ceiling shelves and three wardrobe-like enclosed

bookcases. Two of these have survived, along with about 100 of the Bishop's own books, neatly inscribed with his name.

The library was never catalogued, but the surviving books give a fair indication of his interests. Religious works, of course, predominated, but the good Bishop was also much interested in belles lettres, history, travel, and the reports of the many religious and charitable organizations with which he was connected. Another good, though limited, source of information on the Bishop's library is the subscription lists of books and periodicals. The name of Bishop White was sought after for such lists, since he was widely known and respected. Mathew Carey's periodical, *The American Museum*, for instance, claimed Bishop White as a subscriber in the late 1780s and 1790s. Still another clue to the Bishop's reading is afforded by references to works of history and theology in the text and footnotes of his own published writings.

With all four of these historical libraries, the acquisition of desired editions in reasonably healthy contemporary bindings has been a slow process. Most of the needed volumes, fortunately, are not prime collector's items. Those that are may have to be donated rather than purchased, since funds for this kind of specialized collecting are severely limited. It would be much cheaper and easier simply to go out and get the requisite number of books (or dummies) in appropriate bindings, without regard to titles, but the National Park Service feels that these restored libraries should bear up under scholarly scrutiny, as well as the more casual glance of the general visitor.

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History Research—Getting a Quality but Cost-Effective Product

Edwin C. Bearss

Research provides a ready storehouse of information that enables Park Service employees to accomplish a variety of tasks. Without it, there would be no accurate portrayal of historic events; there would be no knowledge of how to manage our fragile resources; there might not even be a Park Service, because there would be no sense of the past. Director William Penn Mott's 12-point program focuses attention on NPS goals, many of which can only be carried out with the help of effective research: (1) develop a long-range strategy to protect our cultural resources..., (2) stimulate and increase our interpretive and visitor service activities for greater public impact; (3) share effectively with the public our understanding of critical resource issues; (4) increase public understanding of the role and function of the National Park Service; (5) seek a better balance between visitor use and resource management; and (6) expand career opportunities for our employees.

Research is the foundation upon which other activities are built. Funding it, however, requires creativity from program managers, and hard work from their staffs. There are ways to accomplish useful research inexpensively, but this requires careful planning on the manager's part. The following material summarizes the variety of ways the National Park Service has been conducting research. Each technique is the product of an individual manager's creativity and the needs of the area he or she serves. But each technique is also versatile and may be adapted to fit other parks and regions throughout the Service.

Background

When I first entered the National Park Service in 1955, park historians undertook history research in addition to their interpretive and other duties. This was possible because most historical areas had professional historians on staff. Thus, the person most familiar with the area's history and resources performed duties on-site and remained in regular contact with park visitors. A number of these historians became known for their mastery of the subject matter, and were consulted and cited by such nationally known Pulitzer Prize-winning historians as Douglas Southall Freeman and Bruce Catton.

Certain problems developed with this approach, however, the most important being the failure of senior management to recognize that professionals need time to undertake research projects, to hone their history skills, and to insure a substantive peer review. Too frequently, because superintendents had no interest in research, or because historians lacked initiative, annual reports failed to show progress on the parks' approved research programs. In those days, park managers and professionals lacked performance standards with critical elements to insure timely completion of projects.

A field review undertaken by two senior historians in 1962 and the FOST report of the mid-1960s led to a "new approach" to history research, one already tried in the mid-1930s. In December 1965, Director George B. Hartzog, Jr. determined to make Chief Historian Robert M. Utley responsible for all project-related history research and to transfer in from the field a corps of historians who had demonstrated research proficiency. Coincidentally, the regional historian positions were eliminated and no history research was programmed to be accomplished in the field. Most park historians became interpreters or technicians who were to perfect their communication skills and not be too greatly concerned with subject expertise. Most managers forgot that the best interpreter is a person with a vast store of knowledge concerning the site, related sites, and historic themes, as well as a burning desire to share this information with the visitor.

History research for the NPS was undertaken and overseen by Chief Historian Utley's office from the spring of 1966 to April 1970, when the corps of researchers was transferred to the Eastern and Western Service Centers, consolidated and reorganized as the Denver Service Center in November 1971. The historian positions in the Service Centers, being project-related, were not basefunded; historians assigned to projects were not paid out of overhead. As most projects were construction or planning-related, no dollars existed for research geared toward enhancing park interpretive programs. This led to historians, particularly those assigned to history sections of historic structure reports, incorporating large doses of associative and social history.

In the mid-1970s, because of compliance responsibilities resulting from preservation and environmental legislation, and from executive orders of the late 1960s and early 1970s, regional historian positions were reestablished and filled. Coincidentally, in the years following 1965, park personnel undertook less and less history research. Few parks even had staff identified by the title of historian. The park historian was called an interpreter or technician, and viewed primarily as a communicator. Since subject expertise counted for little, a military historian might find himself stationed at Petersburg National Battlefield for two years and then, if he wanted a promotion, at Ozark National Scenic Riverways. With erosion of subject matter expertise in the parks, living history programs received more and more attention.

The overemphasis on living history programs, lack of subject matter expertise at certain historical parks, low morale on the part of over-qualified personnel, and questions raised by a congressional oversight committee led in January 1979 to a workshop at Harpers Ferry. One of the major results of this workshop and subsequent dialogues with constituent groups such as the National Parks and Conservation Association, the Organization of American Historians, and the National Conference of State Historic Preservation Officers was to turn back the clock. Management again encouraged the development of subject expertise.

The decision has been beneficial for the Service as well as the public. Park interpreters and technicians with an interest in history are again becoming involved in the Service's history research program. Indeed, participation of qualified park staff in history research programs is something senior management should stress and build upon through workshops, performance standards, and peer review.

Although most park staffs have or could develop the professional capability to undertake special history studies, park administrative histories, and National Register forms, only a few areas such as Independence National Historical Park, Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park, and Golden Gate National Recreation Area have the personnel and time to undertake an historic resource study (HRS) or an historic structure report (HSR). To accomplish the research and writing of an HRS and the history component of the HSR, the prudent park manager can choose from among the following options, contributed by historians throughout the service.

Denver Service Center—Solid, Reliable, Effective

The Park Service is a unique agency with unique needs. Because of this, The Denver Service Center makes possible access to historical architects and archeologists. For HSRs and research requiring similar multidisciplinary involvement, the expertise is directly available on-site. Interaction, information sharing of data, and the development of new research techniques also occur in this kind of nurturing environment, and, indeed, the final product benefits from its variety of knowledgeable contributors.

Park superintendents also seem to find encouragement in the fact that Denver historians understand how the National Park Service does business. Without instruction from client parks, DSC historians understand what does and does not need to be incorporated in a report. Indeed, their familiarity with the Park Service ranges from coast to coast of the United States, from Spanish forts to "Man in Space." This versatility makes it possible for DSC historians to capably produce a variety of reports, from a special study of

NPS expansion in the 1930s to more traditional administrative histories of Gettysburg and Valley Forge.

Unlike field personnel pressed by other time-consuming responsibilities, DSC historians are able to devote their energy to research and writing. The result is a solid, reliable product. Though parks have tried alternative means of satisfying their research needs, the Denver Service Center retains its reputation as a tried and true route for accomplishing necessary work.

Field Work—Staff Research Makes A Come-Back

Daniel A. Brown, a historian with Cumberland Gap NHP, praises research by historians who are intimately acquainted with a site. He observes that a park's story often appears static without an ongoing, well-established program of research to renew, revive, and enhance interpretation. Such an active program can only be undertaken in support of clearly identified management needs, however. Research projects at Manassas National Battlefield Park, Andersonville National Historic Site, and Stones River National Battlefield have each taken place under the direction of park staff. However, their success has depended on: (1) clear planning and definition of purpose; (2) availability of qualified personnel; (3) early identification of time constraints and completion dates; and (4) peer review and critique.

Ultimately, each project drew on the expertise of park technicians and historians who were deeply interested in the subject area being researched. In the case of Manassas National Battlefield Park, Park Technician John Hennessy was detailed to the project after having compiled pertinent research on his own. The study of Camp Douglas, a prison camp located near Chicago and currently under consideration as the Northern equivalent of Andersonville, was also a project accomplished on detail, this time by the historian from Kennesaw Mountain National Battlefield Park. The Stones River project was the responsibility of Daniel Brown, who completed his research for less than \$1,500.

Projects of this caliber require both creative financing and use of personnel. Funding has come from research grants and through the 10-238 process, while employees emerged from among park staff, their own interests moving them to accomplish research beneficial not only to the Park Service but also to themselves. It is one of the most productive NPS approaches to history research in the 1980s, and as such, is enthusiastically endorsed by the Chief Historian's Office.

The \$3,000 Research Package

Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park has developed its own unique solution to the research dilemma. Expertly managing \$3,000 dollars has enabled the park to produce high-quality research for a minimal amount of money. The funding is obtained from a variety of sources, then used to finance three months of GS-4 seasonal interpretive help.

Lacking the qualifications to actually do research, the GS-4 employee relieves a permanent GS-5 historian from three months of routine public-contact duty. The GS-5 then completes a research project tailored to the three-month time frame. In a situation where no GS-5 appears sufficiently competent to handle the assignment, the project is raised to the GS-9 level. Then the GS-5 temporarily fills in for the GS-9, while the GS-4 picks up loose ends.

From the point of view of research quality and park needs, there is much to be said for doing the job in this manner. Sources of information are familiar to historians who live and work locally, much more so than they are to individuals from outside the area. Equally important is the familiarity of the historian to those who work at such local research sites. These individuals can steer the historian to the arcana which escapes even the best of cross-indexes.

Contract History

Over the years, contract history has proven itself to be yet another route to the accomplishment of necessary research. Despite concern by some that it cannot meet Service needs, the process has been applied with much success in the North Atlantic Region. The skillful monitoring of a contract may even translate into two research reports for the price of one, that is when compared to more traditional approaches for obtaining the same quality of work.

Traditionally, the National Park Service has been circumspect in its use of contract history, the belief being that no one outside the Service could understand Service research needs. Nevertheless, after administering almost a dozen contract research projects over the last several years, the North Atlantic Region endorses the process with assurance. Because research contracts often are awarded to scholars with extensive experience in a particular field of study, the result is usually a detailed and thorough product. Contracting with proven scholars means that: (1) valuable time is not spent in background research, and (2) the specialist can add a certain depth to the project that a generalist cannot. Two recent contracts have been particularly rewarding. Last spring, the Division of Cultural Resources published *Celebrating the Immigrant: An Administrative History of the Statue of Liberty National Monument*. Written by Dr. Barbara Blumberg through The Institute for Research in History in New York City, the report is a detailed analysis of the Service's administration of the monument between 1952 and 1982. Similarly, Dr. Frederick Black of C. W. Post Center, Long Island University, prepared a historic resource study for the Charlestown Navy Yard. Contract cost for this voluminous document equaled one-half that estimated by more traditional sources of research services. In short, the North Atlantic Region has found that contracting historical research produces excellent results at a substantially reduced price.

Administrative Histories For Less

Guided by Bureau Historian Barry Mackintosh, the National Park Service Administrative History Program relies on a variety of creative approaches in order to accomplish its research. Both the huge workload and the dwindling money supplies have required numerous contacts with history department faculty and students in order to promote research opportunities in the Service. In exchange for small or nominal sums of money or simply academic credit, graduate students serve Volunteer in the Parks (VIP) appointments. Much like an internship, this provides them with time to produce some of the Service's many administrative histories. Recent efforts have encouraged several master's degree candidates to do thesis work on topics ranging from a history of winter use at Yellowstone to an administrative history of Ocmulgee National Monument.

When the Service takes advantage of free labor, it is unable to exercise the same control over content and deadlines that it can when paying the bill. Modest financial contributions enable a greater percentage of control, though a project undertaken as a thesis or dissertation benefits from the extra supervision exercised by the student's academic overseers. Among the benefits an "outside" history brings to the Service is the fresh perspective its author usually has on the subject. Nevertheless, recruiting academics can never accomplish the entire job. Administrative histories involving complexities best handled by those familiar with the bureaucracy cannot wait for students with sufficient interest, aptitude, and background to undertake them. All the same, academic talent does provide a valuable source of energy and enthusiasm which enables the administrative history research program to move ahead.

Conclusion

In addition to the Midwest Region's research program (an account of which follows), there is another alternative currently used to great effect by that same office. Successfully employed by the Southeast Region from 1958 to 1965, it involves the use of a regional research historian, and has proven both cost-efficient and conducive to the production of high-quality history reports. During one 12-month period Research Historian Ron Cockrell

undertook and completed two park administrative histories, two special history studies, two National Register forms, and the history component of the Harry S Truman Historic Structure Report, along with the research for the Harry S Truman Historic Resource Study. Thanks to Ron Cockrell's hard work, it would be difficult to find a more productive, cost-effective use of Park Service money and staff time. Truly, for all the parks in the system, there are a lot of options to choose from.

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SEASONAL PRODUCE: THE CULTIVATION OF SMALL HISTORY PROJECTS

Jill York O'Bright

Take \$3,500, one quarter of an FTE, a talented graduate student in history, and a little care and feeding from your permanent staff. Season and simmer for twelve weeks. What do you get? You might end up with a cultural landscape report, the history and significance portion of an historic structure report, a special history study, or a National Register or National Historic Landmark nomination. Such projects are completed by seasonal historians in the Midwest Region's Division of Cultural Resources Management.

For the past six years, John Kawamoto, Associate Regional Director for Planning and Resource Preservation, has ensured the allotment of at least one-half FTE and sufficient funding to hire two seasonal historians. These historians prepare studies either too small in dollar amount to compete for cultural resource preservation funds, or impossible to accomplish at the park level because of heavy workloads or the absence of a qualified historian.

The CRM Division builds on John Kawamoto's work by recruiting, selecting, and supervising historians to guarantee the completion of at least one achievable historical research project per seasonal historian each summer. This requires the selection of appropriate topics for the research projects, as well as capable personnel to accomplish them.

The selection of projects begins well before summer arrives. Experience has shown us it is essential to choose projects which can be accomplished in a twelve-week period. Several project types have proved well-suited, among them National Register and National Historic Landmark nominations, as well as special history studies and oral history projects. Each year, historical research is selected, based on needs identified in resource management plans, and a priority list of about a dozen projects is compiled. When possible, seasonals with special areas of expertise are assigned to related projects. Last summer, a seasonal majoring in military history at Kansas State University was assigned a special history study on the dragoon period at Fort Scott, Kansas.

The selection of bright, motivated, skilled graduate students is as important as the selection of appropriate projects. Recruitment notices and application forms go to more than twenty-five colleges and universities within the ten states comprising the Midwest Region. Applicants are evaluated against the knowledge, skills, and abilities necessary for the position, addressing their knowledge of American history, their writing and research skills, and their ability to work with others and to meet deadlines. The Midwest Region hopes to better evaluate the applicants' writing expertise this coming season by requesting samples.

During the seasonals' first days on the job they are introduced to the operations of the National Park Service (NPS) and to the project they have been assigned. By Monday of their second week, most have arrived at a park to familiarize themselves with its physical resources, develop a task directive and begin their research. The Midwest Region works closely with park superintendents and historians to ensure their interest in the project and willingness to work with the seasonal historian.

The park staff and regional office supervisor also assist the seasonal to develop a task directive, identify possible sources of information, and set due dates. Generally, the historian spends four to six weeks researching, two weeks writing, and one week cleaning up loose ends while the draft undergoes review by the Midwest Region, park, and Washington Office. The seasonal then makes the necessary revisions to the draft.

The time constraints under which the program operates necessitates close cooperation of all involved (no matter how peripherally) in the projects. It is quicker, for instance, for the historians to "write" their drafts directly into word processors, to which they receive a basic introduction. Travel arrangements and vouchers are also processed rapidly, because

delays in travel arrangements can thwart the seasonal historians' abilities to accomplish their work within the time available. In the parks, superintendents make space available. They also take time during their busiest season to meet with and assist the historians, as well as rapidly review draft reports so that revisions are not delayed. Equally important is the commitment of the permanent regional staff. In every aspect but the actual research and writing (admittedly, the major parts of any research project), the staff treats the undertaking as if it were their own.

Obviously, the success of the program is not accidental. It requires hard work on the part of both seasonals and permanent staff. Why are we committed to a program which makes our jobs so hectic? The answer is simple. It enables us to accomplish research which might otherwise be delayed for years, or perhaps never completed. Equally significant, it exposes students to history outside the academy. More specifically, it exposes them to the NPS, and can identify outstanding prospects for possible recruitment to the Service.

The seasonal historian program increases our productivity far beyond what we could accomplish with our permanent staff of two historians, and provides an avenue of communication between the Service and promising graduate students in history. It offers a creative and cost-efficient way to gather baseline data and to introduce the Service to bright fledging professionals, and them to us.

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